

## CLAIMS

The invention is claimed as follows:

1. A lamp for detecting fluorescent dyes that have been added to an air  
5 conditioning or refrigeration system, wherein the fluorescent dyes reemit light at a  
wavelength greater than the wavelength of light emitted from the lamp, the lamp  
comprising:

a lamp housing flexibly connected to a power source;

at least one light-emitting diode within the lamp housing, the diode emitting  
10 light having a wavelength band effective to enhance the reemission of light from the  
fluorescent dyes, and

wherein said miniaturized lamp is sized to facilitate maneuvering inside an  
engine compartment and around an air-conditioning system or refrigeration system.

2. The lamp of claim 1, wherein the diode is a blue light-emitting diode.

15 3. The lamp of claim 1, wherein the diode is a UV light-emitting diode.

4. The lamp of claim 2, wherein the blue light-emitting diode is an indium  
gallium nitride semiconductor.

5. The lamp of claim 2, wherein the blue light-emitting diode is a laser diode.

6. The lamp of claim 5, wherein the laser diode is a gallium nitride based laser  
20 diode.

7. The lamp of claim 1, further comprising a protector ring connected to the  
lamp housing.

8. The lamp of claim 7, further comprising a lens positioned within the  
protector ring.

9. The lamp of claim 8, wherein the lens is a filter selected from the group consisting of black, red, amber, yellow, green, blue, indigo, violet, UV light and full spectrum filters.
10. The lamp of claim 9, further comprising a blocker glass.
- 5 11. The lamp of claim 9, wherein the lens is a dichroic filter.
12. The lamp of claim 1, further comprising a plurality of light-emitting diodes.
13. The lamp of claim 12, wherein each of the light-emitting diodes emits the same color light.
- 10 14. A method for detecting leaks in an air-conditioning or refrigeration system, comprising the steps of:
- inserting a fluorescent dye into an air-conditioning or refrigeration system;
- running the air-conditioning or refrigeration system; and
- inspecting the air-conditioning or refrigeration system with the lamp of claim.